

## BOTRYCHIUM SILAIFOLIUM PRESL

BY LUCIEN M. UNDERWOOD

This species was originally described from Nootka Sound, and all the American writers on ferns, commencing with D. C. Eaton, have confused a Californian species with it. I was led into the same error some years ago and wish now to make a correction. The collection of a large amount of material in the State of Washington by Mr. J. B. Flett and by Professor C. V. Piper has shown that the species of that region is nearer to Presl's type than any of the Californian material as yet collected and there seem to be no intermediate forms between the species of northern California and the one of the states farther north. On the other hand, Mr. Flett's specimens show gradations from my *B. occidentale* to the typical equivalents of *B. silaifolium* Presl. After I reached this conclusion two years ago, I learned that Mr. Piper had independently come to the same conclusion, viz., that, *B. silaifolium* Presl and *B. occidentale* Underw. were really one species. *B. occidentale* was described from tall rather slender plants of the species quite in contrast with the more compact form as originally described by Presl and represents an extreme development of the species. The relation of D. C. Eaton's "*sub-var. intermedium*" to this species was pointed out to me long ago by Mr. Gilbert and I am inclined to regard that form as representing the eastern extension of the western species or *vice versa*. I am not yet ready to locate this latter form as a variety or species, and hope that further collection and study will clear up some doubts in the matter.

The synonymy of the western species then is as follows :

*BOTRYCHIUM SILAIFOLIUM* Presl, Rel. Haenk. 1 : 76. 1825.

(Type from "Nootka-Sund.")

*Botrychium occidentale* Underw. Bull. Torrey Club 25 : 538. 1898. (Type from New Westminster, British Columbia.)

RANGE : Washington to British Columbia.

This transfer of the Washington and British Columbia plants to *B. silaifolium* leaves the Californian plants hitherto referred to that species without a name. They may be described as follows :

**Botrychium californicum** sp. nov.

The largest of our species, with leaves 20–35 cm. across, the leaf of the preceding year usually long persistent. Roots fleshy, stout, fibrous: common stalk very short, 3–4 cm. long, subterranean; leaf-stalk 10–16 cm. long, stout, fleshy; leaf-blade 20–35 cm. wide, 15–25 cm. long, the three main divisions copiously tripinnate or often quadripinnatifid, the lower divisions more compound on the lower side of the base; segments 9–13 or more to each pinnule, obliquely oval, the larger more or less lobed, the margins crenate or eroded: sporophyl 15–25 cm. long, quadripinnate or more, on a stalk 30–45 cm. high.

This species was figured by D. C. Eaton, *Ferns N. A.* 1: *pl.* 20a (lowermost figure only) and called by him "*var. australe*" of his all-embracing *Botrychium ternatum*, the name *australe* coming from one of the smaller (Australian) species of the group, while this is one of the largest. It appears to be confined to northern California. Specimens have been studied as follows:

Sisson, Siskiyou County, 30 July, 1894, *M. A. Howe*; Sierra County, 1874, *Leemmon*; Quincy, Plumas County, *Mrs. R. M. Austin* (type), *Mrs. C. C. Bruce*; Emigrant Gap, *A. Kellogg*; all in the collections at the New York Botanical Garden, which include the collections of Columbia University and those of the writer, now incorporated in a single series.

COLUMBIA UNIVERSITY,  
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## SHORTER NOTES

AMELANCHIER ARGUTA\* Nutt.—This species has been mistaken for *Amelanchier oligocarpa* (Michx.) Roem. It differs in smaller, round-oblong fruit, calyx-lobes ovate, acute, about 2 mm. long, leaves ovate-oblong, cuneate at both ends, finely serrate. *A. oligocarpa* has larger, pear-shaped fruit, calyx-lobes lanceolate, acuminate, 3–5 mm. long, leaves oblong, more coarsely serrate. Specimens examined:

The technical type is a sheet in the herbarium of Columbia University inscribed "*Amelanchier arguta* Nutt. Waychusett, Mass."

\**A. arguta* Nutt. in herb. Torrey; Britton, Man. 1066. 1905 [Ed. 2].